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Marketing Research Report No. 797

Economic Aspects of Unhairing Hides at the Packinghouse

U.S. Department of Agriculture
Economic Research Service

PREFACE

The economic feasibility of unhairing hides at or near packinghouses to produce higher quality leather at lower costs and thus improve the competitive position of leather is evaluated in this report. The study was suggested by the American Leather Chemists Association.

This project is part of a broad research program being conducted by the Department of Agriculture to find how the marketing of hides and leather can be improved.

Special acknowledgement is extended to Beamhouses, Inc., St. Louis, Mo.; S. B. Foot Tanning Co., Redwing, Minn.; Seton Leather Co., Newark N. J.; and the Charles H. Stehling Co., Milwaukee, Wis., for providing primary data for the study.

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SUMMARY

Greater efficiency in marketing hides could have an important impact on the ability of the American hide and leather industries to compete in domestic and foreign markets. Unhairing hides (commonly called beaming) at or near packinghouses is one means by which tanneries can provide the leather industry with raw material at lower costs.

Salt curing of hides at packinghouses accomplishes only one purpose--the preservation of hides until they are unhaired. The location of beamhouses or unhairing facilities at packinghouses has three advantages. First, curing is eliminated. This can reduce hide marketing costs by 60 to 90 cents per hide. Second, transportation costs are reduced. On a Midwest to New England hide shipment, transportation costs could be reduced by about one-third, or 25 cents per hide. Third, there is the potential that better quality leather will result when curing defects are eliminated. The quality improvement may come about in two ways--improved physical properties and a greater proportion of full-grain leather.

Hides represent about half the cost of finished leather. If fleshing, transportation, and costs of beaming at the tannery are added to the cured hide prices (assumed to be about 12 cents a pound, or $7.20 per hide), a hide is worth about $9 prior to tanning. The results of this study indicate that beaming at the packinghouse, by eliminating the curing process, would reduce costs.

Two model beamhouses operating independently of a tannery are presented to show the capital investment, operating costs, and labor requirements typical of the average beamhouse. The first model has a capacity for processing 500 hides daily, and the second a capacity for beaming and pickling 1,000 hides daily.

The beamhouse processing 500 fresh hides daily incurs expenses of about $1.42 per hide. Total costs can be broken down as follows: taxes, interest, and depreciation, 24 cents; direct labor, 40 cents; indirect labor, 40 cents; chemicals, 15 cents; and all other costs, 23 cents. Capital investment in plant and equipment is $192,000. Annual profit before taxes is $104,000.

Total costs for the plant beaming 1,000 fresh hides daily are $1.12 per hide. Fixed costs are 19 cents. Variable costs are chemicals, 15 cents; direct labor, 38 cents; supervision, 20 cents; and other expenses, 20 cents. The total investment in building and equipment was estimated at $330,000. Annual profit before taxes is $283,000.

ECONOMIC ASPECTS OF UNHAIRING HIDES AT THE PACKINGHOUSE

by

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INTRODUCTION

Research to provide new uses for hides and leather, while highly desirable, cannot provide new markets for the industry on short notice. In the long run, the success of the leather industry will be determined by the quality of raw material produced and the costs incurred in processing to attain the desired quality. Thus, an evaluation of changes in the handling of hides is warranted.

Unhairing of hides, commonly called beaming, is traditionally done at the tannery after the hides are cured. Recently, there have been some beamhouses located at or near the source of supply. This permits the beaming of fresh hides, followed by pickling for preservation, and eliminates the need for curing. The location of beamhouses at packinghouses may have an important economic effect on the future of the hide and leather industry.

Processing fresh rather than cured hides can eliminate salt stains, deterioration in quality, and the cost of curing. The first beamhouse independent of a tannery was opened in St. Louis in 1962. Four other firms now have facilities to beam and pickle fresh hides at the source of supply and two more are under construction. Two of the five firms now in operation go one step further and take the hides through the tanning process. Most of these beamhouses are owned by or closely affiliated with a tannery which can in this way maintain better control of the quality of the hides.

Little published material is available concerning the construction and operation of an independent beamhouse. As a result, many tanners, packers, and hide dealers hesitate to depart from the salt or brine curing of hides without prior knowledge of operating costs, labor requirements, or capital expenditures involved in the beaming of fresh hides. This report is designed to expand management's knowledge of these items.

The procedure followed in the study was to construct a model of each of two different-sized beamhouses typical of those now operating independently of tanneries. One of the models has a capacity of 500 hides per day, the other has a capacity of 1,000 hides per day. The models represent average operations rather than highly efficient operations or those with low supervision and overhead costs.

The following cost items can vary significantly from one location to the next: (a) land value, (b) building costs, (c) taxes, insurance, and other assessments, and (d) distribution and selling costs. For comparisons, these cost items should be adjusted to conform to local conditions.

OPERATIONS OF INDEPENDENT BEAMHOUSES

The Beaming Process

The hair and flesh (adipose tissue) must be removed from a hide before tanning. The removal of flesh is done in a fleshing machine. The machine has rotating spiral knives under pressure which scrape the flesh from the hide. The second step is the removal of hair. The hide is submerged in lime water, sulfides, or a combination of the two chemicals, for 1 or 2 days. It is then passed through an unhairing machine similar in principle to a fleshing machine.

Technically, no further processing of the hide would be necessary until it reached the tannery, because the lime would act as a preservative. However, limed hides are slippery and difficult to handle. Thus, it is customary to wash, bate, and pickle the hides. Bating is a process which loosens the lime scum. Bate is generally a weak solution of ammonium chloride, wood flour, and dried cattle pancreas. The last step in beaming hides is pickling. The pickling solution is a weak concentration of sulfuric acid and salt which acts as a preservative until the hide reaches the tannery. If the pickling is properly done, hides can be held in storage several months before they are tanned. Many of the tannery managers believe that in beamhouses of the future hides will be put into large drums and washed, unhaired, and pickled without being removed from the drum. This consolidation of operations should help lower labor requirements considerably.

Under ordinary conditons, the entire beaming operation can be accomplished in 2 days. The sequence of operations follows:

1. Receive and weigh fresh hides.
2. Trim and side.
3. Wash for 15 minutes or longer.
4. Flesh.
5. Lime 20 to 24 hours.
6. Unhair.
7. Wash, bate, and pickle--10 hours.
8. Sort, grade, and place on pallets.

Material Balances

The weight of an average steer hide after it is removed from the carcass is about 75 pounds. After trimming, fleshing, beaming, and pickling, the weight of a hide is about 37 pounds, or half the original weight. The approximate material balances are as follows:

	Pounds
Green hide weight	75
Less:	
Trimmings (ears, snout, tail, etc)	6
Hair	2
Fleshings	10
Shrink, or moisture, loss	20
Weight of pickled hide	37

MODEL BEAMHOUSES

Economies of scale exist for most businesses. In general, the more you produce or process, the lower the unit costs. A minimum of 500 hides a day is estimated to be needed before a beamhouse can reach its break-even point. This is the point at which revenues cover fixed and variable costs for installing and operating a beamhouse. There were about 32 packing plants and 35 hide dealers with a sufficient volume of hides from their own operations to warrant installation of a beamhouse for 500 hides daily. One model represents these plants.

However, many hide dealers in recent years have pooled the hide supply of several packing firms in their areas, and now process 2,000 to 3,000 hides daily. Many of these firms might find it profitable to start beaming a portion of their hides, and continue curing the remainder of their supply in the conventional manner. Therefore, a model beamhouse processing 1,000 hides daily is also presented.

Assumptions

Following is a list of the assumptions made about the beaming process, physical facilities, and labor requirements of the two model beamhouses:

1. Costs are based on 1964-65 prices.

2. The plant is a one-story block building on ground level.

3. Storage is provided for 1 month's production.

4. Nineteen square feet of floor space is needed per hide processed daily. Half of the space is used for storage of pickled stock.

5. Adequate water, sewage, electrical, and rail transportation facilities are available at the plant at typical rates.

6. The plants operate 5 days a week, 250 days a year. One cures 500 hides a day, the other cures 1,000 hides a day.

7. The weight of a green hide is 75 pounds, and the pickled shipping weight is 37 pounds. This is about 11 pounds less than a fleshed hide, and 23 pounds less than an ordinary salted hide.

8. Lime costs are $24 per ton delivered.

9. Hair recovery is optional. If the hair is saved, each hide will yield about 2.5 pounds of dried hair. Labor costs for recovery are about 6 to 7 cents a pound. The current price for hair is 18 cents a pound.

10. Trimmings and fleshings are sold for $30 per ton. (Several processes are now available for recovering fats from fleshing. For firms building beamhouses, it may be feasible to install the auxiliary equipment for fat recovery.)

11. Water requirements are 125 gallons of water per hide.

12. The hides are trimmed and sided upon arrival and no further trimming is needed.

13. Hides are weighed when received and when shipped.

14. The crew consists of about 8 full-time laborers on split shifts in the plant processing 500 hides daily, and 14 laborers on split shifts in the plant processing 1,000 hides daily.

15. Hourly wages of laborers are $3.35 per hour, including fringe benefits amounting to 35 cents per hour.

16. Supervision and administration personnel include a full-time foreman, a chemist, a secretary, and the owner or manager. (In reality, the foreman may also be the chemist, which reduces managerial costs considerably). A part-time secretary is employed in both plants.

17. Interest at 6 percent per annum is charged on overall investment, calculated by the following formula: $\frac{(N + 1)\ (\text{Cost})}{2\ N}$ where N = expected years of life. Taxes and insurance are calculated at a flat 3 percent on plant and equipment. Depreciation is estimated by the straight-line method.

18. Paddle vats are used for the unhairing operation, and drums for the pickling operation.

Facilities and Equipment

Plant layout and location are frequently major obstacles to efficient operations. Many tannery beamhouses are located in inaccessible areas where an excessive amount of labor or equipment is needed to get the hides into or out of the beamhouse.

The construction of a one-story building has many advantages. Large sums of money normally expended for heavy footings, structural steel, etc., on multistory structures can be saved. Dump trucks can unload hides directly at the trimming and siding area. In packing plants, the hides can be conveyed directly to the trimming area. A ground-level building, therefore, eliminates equipment and labor needed to move hides or materials up or down within the plant.

The suggested plant layouts for the two models are shown in figures 1 and 2. The buildings are divided into two sections--one section for processing hides (about 19 square feet of floor space for each hide processed daily), and the other section for storage of pickled hides. A partition separates the two areas so that chemicals, water, etc., used in processing cannot come into contact with the pickled stock.

There is one major difference between the beamhouses described here and conventional ones--a 30-foot hide-washer is used instead of a drum to wash the hides. This practice may not be feasible in tannery beamhouses because the hides are salt-cured and stiff. However, with fresh hides, the removal of manure can be accomplished with a hide washer, eliminating the need for moving hides on pallets. The use of this equipment reduces capital investment by eliminating the need for an additional drum, and the labor for loading and unloading the drum. In a typical beamhouse processing 500 hides daily, about 4 hours are needed to load and unload hides from a drum.

Total costs for the buildings and equipment for both models are shown in tables 1 and 2. The figures given are estimated by assuming the buildings could be constructed for $10 a square foot, and the land purchased for $10,000. There are three methods by which capital investment could be sharply reduced: (1) the building could be rented, (2) the size of the building could be reduced by moving the pickled stock directly to the tannery, or (3) steam could be purchased commercially.

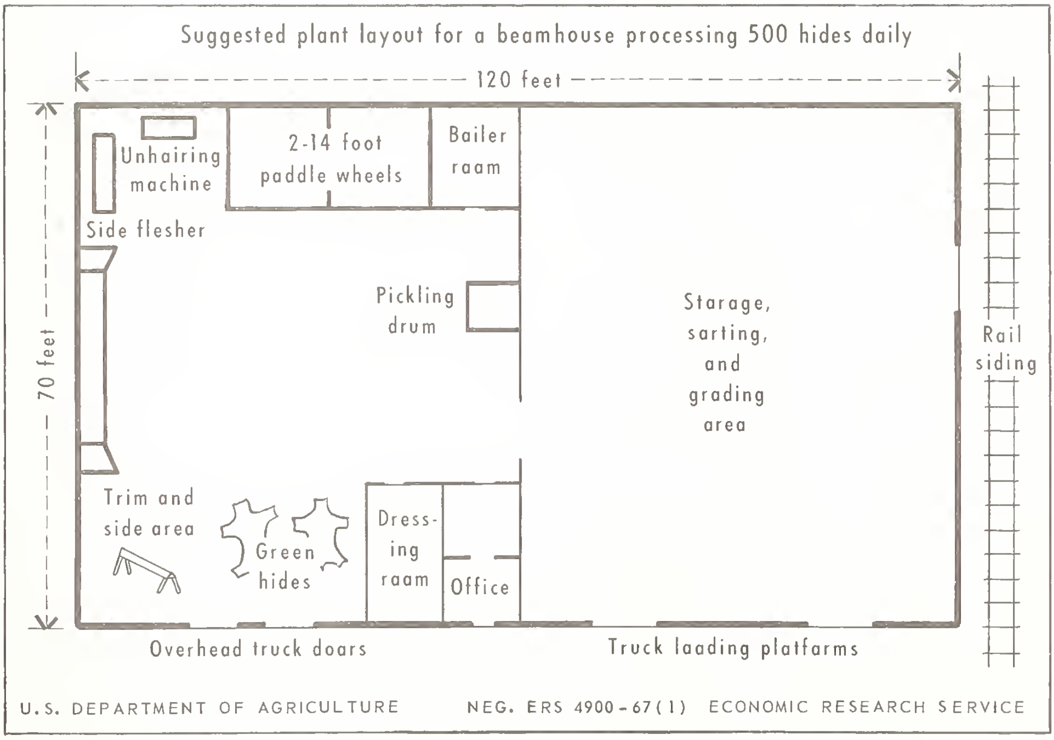

Figure 1

Suggested plant layout for a beamhouse processing 1,000 hides daily

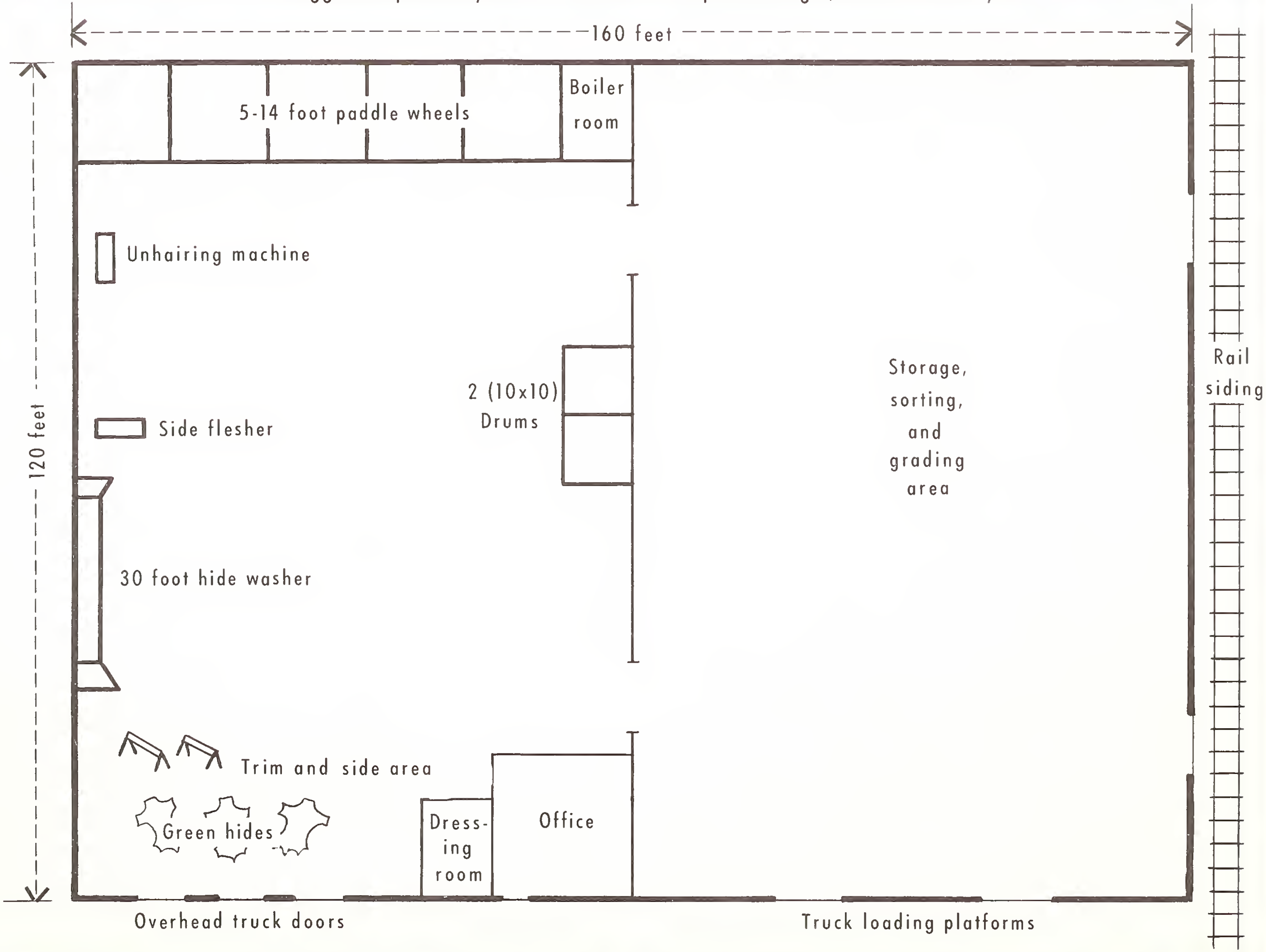

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Figure 2

Labor Requirements

Although there are variations for individual jobs, the total man-hours for all operations are relatively uniform among the beamhouses studied in this report. In almost all instances, it is necessary to work split shifts to start or stop the liming and pickling operations. The total labor requirements for the model plant processing 500 hides a day are 56 man-hours daily (table 3), and for the model plant processing 1,000 hides a day, 114 man-hours daily (table 4). An additional 4 man-hours are allowed in each plant for nonproductive time and housekeeping.

In any beamhouse, the rate at which the machines operate determines the number of hides which can be processed per man-hour. In the model plants, 200 sides per hour is the rate at which the side-fleshing machine operates. The rate for the unhairing machine is 180 sides per hour. Since the hides are not bundled or stiff, and there is no salt to clean, the labor time allocated to trim and side the incoming hides may be more than necessary--16 man-hours for the 500-hide model, and 32 man-hours for the 1,000-hide model. Currently, there are some tanneries in which a three-man crew can unbundle, trim, and side 150 hides per hour. If this rate were established in the model plants, it would reduce the number of man-hours required for this operation by approximately one-third.

Table 1.--Annual ownership costs for model beamhouse processing 500 hides daily (125,000 hides a year), based on 1964-65 prices

Items	Dollars
Building:	
120 x 80 at $10 per sq. ft.	96,000
Land	10,000
Total building cost	106,000
Equipment (new):	
Two 14-foot paddle wheels	12,000
One 10 x 10 drum	11,000
One 30-foot hide washer	8,000
Tannery-type flesher	10,000
Unhairing machine	9,500
Scales	3,500
Boiler	12,000
Forklift and skids	15,000
Office equipment	1,000
Miscellaneous	4,000
Total equipment cost	86,000
Total capital investment	192,000
Optional equipment: 1/	
Hair washer	7,000
Hair dryer	22,000
Hair baler	4,000

1/ Optional equipment is not used in estimating costs and returns.

Table 2.--Annual ownership costs for model beamhouse processing 1,000 hides daily (250,000 hides a year), based on 1964-65 prices

Items	Dollars
Building:	
120 x 160 at $10 per sq. ft.	192,000
Land	10,000
Total building cost	202,000
Equipment (new):	
Five 14-foot paddle wheels	30,000
Two 10 x 10 drums	22,000
One 30-foot hide washer	8,000
Tannery-type flesher	10,000
Tannery-type unhairing machine	9,500
Scales	3,500
Boiler	25,000
Forklift and skids	15,000
Office equipment	1,000
Miscellaneous	4,000
Total equipment cost	128,000
Total capital investment	330,000
Optional equipment: 1/	
Hair washer	7,000
Hair dryer	22,000
Hair baler	4,000

1/ Optional equipment is not included in estimating costs and returns.

Table 3.--Man-hour requirements for model beamhouse processing 500 hides daily (125,000 hides a year)

Job	Man-hours
Labor:	
Trim and side incoming hides	16
Wash (in 30-foot hide washer)	0
Flesh	5
Lime (put into and pull from vats)	10
Unhair	6
Wash, bate, and pickle (load and unload drum)	7
Sort, grade, and ship	12
Maintenance and nonproductive labor	4
Total hours	60
Salaried Employees:	
Foreman	8
Chemist	8
Owner-manager	8
Part-time office help	4

Table 4.--Man-hour requirements for model beamhouse processing 1,000 hides daily (250,000 hides annually)

Job	Man-hours
Labor:	
Trim and side incoming hides	32
Wash (in 30-foot hide washer)	0
Flesh	10
Lime (put into and pull from vats)	20
Unhair	12
Wash, bate, and pickle (load and unload drums)	14
Sort, grade, and ship	22
Maintenance and nonproductive labor	4
Total hours	114
Salaried Employees:	
Foreman	8
Chemist	8
Owner-manager	8
Part-time office help	4

Fixed and Variable Costs

The estimated annual operating expenses for the 500-hide model are shown in table 5. Of the $178,000 total, $148,000 is for variable costs--labor, chemicals, and administration. Fixed costs for land, building, and equipment are $30,000. Costs per hide are established at $1.42. Of this amount, $1.18 is for variable costs while $0.24 is for fixed costs.

The expenses for the 1,000-hide model total $279,000 (table 5). Of this amount, $232,000 is for labor, chemicals, and supervision; and fixed costs for land, building, and equipment are $47,000. Costs per hide are established at $1.12. Of this amount, 93 cents is for variable costs and 19 cents for fixed costs.

Fixed costs include interest, taxes, insurance, and depreciation on the building and equipment as well as interest on working capital and hide inventories. Annual ownership costs (depreciation, interest, taxes, and insurance on land, building, and equipment) are $30,000, or 25 cents per hide for the 500-hide plant, and $47,000, or 19 cents per hide, for the 1,000-hide plant.

The annual operating expenditures include other items such as (1) interest on a 20-day inventory of hides in cure valued at $8.45 each, (2) carrying charges on hide shipments for 5 days, (3) interest on working capital estimated at one-twelfth of the annual variable costs, and (4) taxes and insurance of 3 percent on total investment. Most of these operating costs would be reduced or eliminated if the beamhouse were a subsidiary of a tannery.

Table 5.--Annual operating expenditures of a model beamhouse processing 500 hides a day (125,000 a year), and a model beamhouse processing 1,000 hides a day (250,000 a year), based on 1964-65 prices

	125,000 hides annually		250,000 hides annually	
	Cents per hide	Dollars per year	Cents per hide	Dollars per year
Fixed costs:				
Interest on hides 1/	4.1	5,070	4.1	10,140
Interest on building 2/	2.6	3,259	2.2	5,596
Interest on equipment 2/	2.3	2,838	1.7	4,224
Carrying charges on hide shipments 3/	1.0	1,267	1.0	2,535
Interest on working capital 4/	.6	740	.5	1,162
Taxes and insurance 5/	4.6	5,760	2.3	5,760
Depreciation 6/				
Equipment	6.9	8,600	5.1	12,800
Building	1.9	2,400	1.8	4,550
Total fixed costs	23.9	29,934	18.7	46,767
Variable costs:				
Chemicals	15.0	19,000	15.2	38,000
Utilities	13.0	16,000	12.8	32,000
Repairs	2.0	3,000	2.0	5,000
Labor ($3.35 per hour)	40.0	50,015	38.2	95,475
Supervision	40.0	50,000	20.0	50,000
Selling	8.0	10,000	4.8	12,000
Total variable costs	118.0	148,015	93.0	232,475
Total fixed and variable	1.42	177,949	1.12	279,242

1/ 20-day pickled hide inventory at $8.45 each.

2/ Interest at 6 percent of average investment. (Average investment: $\frac{(N+1)\ (\text{cost})}{2N}$, where N = expected life in years.

3/ Carrying charges on hide shipments for 5 days at $8.45 each.

4/ One-twelfth of annual variable costs of $1.18 per hide.

5/ Taxes and insurance 3 percent on plant and equipment.

6/ Straight-line depreciation, equipment 10 years, building 40 years.

Capital investment in land and buildings can have quite an influence on total costs. Generally, high annual fixed costs are attributable to excessive space requirements and inventory practices. Moving pickled hides directly to the tannery, rather than storing a 20-day supply, would make it possible to reduce space requirements by about 25 percent. This reduction would also help lower costs by reducing carrying charges on hide inventories.

Variable costs for the smaller model are $148,000 annually, or $1.18 per hide (table 5). Labor accounts for 40 cents per hide, while the cost of materials and utilities is 28 cents per hide. Supervision and administration are 40 cents per hide, or $50,000 annually. Other variable costs include selling costs, repairs, and office supplies, which total about 10 cents per hide.

Variable costs of the 1,000-hide model plant are $232,000 annually, or 93 cents per hide (table 5). Labor is the largest variable cost, accounting for 38 cents per hide. Supervision, 20 cents per hide, is the second largest variable cost. If the foreman or owner had a technical background in beamhouse operations, this cost would be substantially reduced in either model by elimination of the chemist's salary. Chemicals and utilities total 28 cents per hide. Other variable costs include repairs, office supplies, and selling, which total 7 cents per hide.

Most jobs in a hide house do not require a great amount of skill or training. Thus, hourly wage rates are usually lower in beamhouses than in other types of industrial employment. For the model firm, it is assumed that a competent labor force could be assembled when the management guarantees a 40-hour week.

SALES, COSTS, AND PROFITS

Typical costs for conventional handling of hides--curing them at the packinghouse, transporting them to a tannery, and beaming them at the tannery--are listed below.

	Dol.
Green hide, 75 lb. at 9 cents	6.75
Cured hide, 60 lb. at 12 cents	7.20
Fleshed hide, 48 lb. at 15 cents (80 percent fleshing factor)	7.20
Fleshed hide	7.20
Plus transportation at 1.5 cents per lb.	.72
Incoming tannery cost	7.92
Plus tannery beaming cost	1.25
Tannery value after beaming	9.17

Beaming of fresh hides at the source of supply would get hides to the tanning operation for about the same cost. [1] The green hide value for 75 pounds at 9 cents or a total of $6.75 is the same as in the example on the previous page. Itemized charges are as follows:

	Dol.
Cured hide value, 60 lb. at 12 cents	7.20
Beaming charges	1.25
Transportation, 37 lb. at 1.5 cents	.55
Incoming tannery cost	9.00

Although both methods are close in cost, the cost reduction in the second example is reflected in the profits of the beamhouse (table 6). The model beamhouse processing 500 hides daily had an annual profit before taxes of $104,000 and the beamhouse processing 1,000 hides daily, $283,000 before taxes.

Table 6.--Sales, costs, and profits of a model beamhouse processing 500 hides a day, and a model beamhouse processing 1,000 hides a day

Beamhouse	500 hides daily	1,000 hides daily
Costs:		
Hide (75 lb. green wt.)	$6.00	$6.00
Manufacturing cost	1.42	1.12
Hauling	.35	.35
	$7.77	$7.47
Sales:		
Pickled hide 1/	$8.45	$8.45
Fleshings	.15	.15
	$8.60	$8.60
Profit before taxes:		
Per hide	$ .82	$1.13
Annually	$103,750.00	$282,500.00

1/ Based on a 60-pound conventional cured hide at 12 cents per pound plus $1.25 for a beaming charge.

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[1] Brokerage fees are not used in either calculation.

Other important factors can have a substantial effect on net profits. For example, in the model beamhouses only $50,000 is allocated for administration, supervision, and the services of a technologist; hauling charges are established at 35 cents per hide, hourly-labor costs at $3.35 per hour, and selling costs at $10,000 a year. Any of these costs may vary in different areas of the country.

INDIRECT ECONOMIC ADVANTAGES

If a beamhouse is economically feasible, and quality-control problems can be overcome, there are many indirect advantages to be gained by tanneries locating beamhouses at the source of supply.

(1) Better quality leather can result from properly beamed fresh hides than from hides beamed after curing. The improved quality may come about in two ways--a hide will yield a larger amount of full-grain leather, and the leather will have better physical properties. Also, tensile strength may be increased 10 to 15 percent and grain crack by 25 percent. Generally, bellies are tighter, the grain surface flatter, neck wrinkles reduced, and salt stains eliminated.

(2) Many tanneries are located in large metropolitan centers where they have water-shortage and waste-disposal problems, and where water and sewage costs are higher than in areas with more adequate water supplies. Thus, it may be possible for some tanners to overcome water or sewage problems, and at the same time reduce water or sewage costs, by purchasing beamed hides or building a new beamhouse. However, most slaughter areas also have these problems.

(3) Many tanneries lack space for expansion, or the land needed for expansion is too costly. The location of a beamhouse at another site could overcome expansion problems by freeing space in the existing tannery for other operations.

(4) Beaming costs can be reduced. Almost all cost analyses in other industries have indicated that new-capital investment lowers processing costs in the long run.

(5) Hide cellars could be cut in size or eliminated if beamed and pickled stock came to the tannery on pallets. This would eliminate the need for space for storing hides and labor requirements for untying and trimming. A tanner carrying an inventory of 30,000 hides may have storage costs of 15 cents per hide. In addition, labor costs for untying and trimming hides may be 10 cents per hide.

(6) With the elimination of storage of hides, capital investment in cured hide inventories could be eliminated. An inventory of 30,000 hides represents a capital investment of more than $250,000. Interest on $250,000 at 6 percent annually is $15,000. A portion of this could be saved if beam stock was put into tanning upon arrival.

It is improbable that all of these indirect cost advantages would accrue to any one tannery that received beamhouse hides. But three or four of these advantages might represent a net savings of as much as 25 to 50 cents per hide.

PROBLEMS AND RECOMMENDATIONS

Changes in, and acceptance of, new marketing practices are usually slow and costly processes involving many managerial decisions. Some of the primary factors to be considered follow.

Quality Control

The most frequent concern of tanners contemplating the purchase of pickled rather than cured hides is that quality varies too much.

Discussions with beamhouse and tannery operators suggest that one reason for poor quality is that hides are not always kept in the pickling solutions long enough. Beamhouse operators need to take steps to correct this situation to assure penetration of the solution through the entire hide. If, however, hides are not properly pickled, purchasers can repickle them for about 15 cents each.

Other causes of poor quality are deterioration caused by changes in temperature, humidity, and the length of time pickled stock is held in storage. Preliminary tests by some firms indicate that encasing pickled hides in plastic sheeting helps to overcome these changes to some extent. The plastic also prevents contamination of the hide by water or other foreign matter.

More research on methods of pickling and maintaining quality appears to be needed to overcome the problem. Tests are being made by the Eastern Regional Research Development Division of USDA's Agricultural Research Service on new and improved methods of pickling to maintain quality control.

Availability of Technologists

It appears much of the quality control problem would be eliminated if technologists were available. There are no universities offering courses in leather technology, and there is a serious shortage of personnel. If the practice of beaming hides at the source of supply is to succeed, there is a definite need for an increase in the number of qualified and competent leather technologists. Almost all the qualified technologists are now employed by tanners, and for this reason it appears that most beamhouses will continue to be associated with tanneries.

Variation in Type of Hides

The type and weight of hides vary because packers do not consistently slaughter the same weight or type of animal. Many tanners say it is not feasible to have a long-range commitment with a packer or dealer for hides because of the variation; many others have for years purchased the entire hide production of individual packing plants. However, this does not preclude the successful operation of independent beamhouses. First, there is no reason why the entire production from a beamhouse should go to any one tanner. For example, it may be feasible for a beamhouse to pickle light hides for tanners of side uppers and to sell heavy hides in the lime or brine condition to tanners of sole leather. Second, a tannery need not be solely dependent on a beamhouse for all its hide requirements. A tanner could purchase some hides from a beamhouse and some from a packinghouse.

Grades and Pricing Policies for Beamed Hides

A marketing factor which has not received much attention, but which may be quite important, is the establishment of new grades and pricing policies for pickled stock. Selling pickled hides on a weight basis is not very representative of the true value of the product. A more realistic method of pricing may be to place a value on area, thickness, grain surface, and quality.

Water and Sewage Facilities

Perhaps the biggest factor which will discourage the building of beamhouses at the source of supply is the lack of sufficient water or adequate sewage disposal facilities in most slaughter areas.

A beamhouse processing 1,000 hides daily needs about 125,000 gallons of water. The waste water contains lime, sulfides, and acid. There are relatively few municipalities which can handle this type of sewage. However, as more Federal funds become available for the construction of new sewage facilities this problem should be reduced. State and local commissions for economic development may be of assistance in finding adequate sites for firms interested in building beamhouses. Also, rural area development programs may help alleviate these problems in some instances.

Some progress has been made toward reducing the problem of sewage. The use of polyelectrolytes in settling tanks seems to be a promising method for treating beamhouse discharge. Also, the addition of small amounts of manganese sulfate to the lime liquors 2 hours after sulfides have reacted with the hides helps reduce the odor problem arising from the release of hydrogen sulfide when it comes in contact with acid solutions. 2/

2/ Minutes of American Leather Chem. Res. Liaison Comm., Peabody, Mass., Sept. 1966.

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